

## **SVR Criteria Questions**

### **1. Program schedule**

- 1.1 Does the Program have an updated schedule with sufficient detail to support testing? Are the tasks linked?
- 1.2 Is the schedule built upon bottom-up task planning?
- 1.3 Is the schedule reflective of available resources?
- 1.4 Does the program schedule have an identified critical path and is that critical path consistent with overall technical risk?
- 1.5 What is the status versus Critical Path?

### **2. Management metrics relevant to life cycle phase**

- 2.1 Cost / Schedule / Performance / Key Performance Parameters (KPP) – Status versus Plan. Is the latest revised estimate of each KPP in accordance with the Acquisition Program Baseline? Are the KPP's reflective of program risks and technical results? What derived requirements or derived performance measures are being tracked by the Program? What is the latest revised estimate of each? What is the latest status of critical system constraints (e.g. weight)?
- 2.2 Latest cost estimate – Is the cost estimate consistent with the technical risk of the program, the critical path plan and available resources?
- 2.3 Estimate of production costs – Is the estimate for production costs consistent with the system as it exists? Are all elements of production cost addressed?
- 2.4 Estimate of O&S Costs – Is the estimate for O&S costs consistent with the system as it exists? Are all elements of O & S cost addressed?
- 2.5 Earned Value Management (EVM)
  - 2.5.1 Is the EVM data up-to-date?
  - 2.5.2 Is the EVM baseline being used as a program execution tool (i.e. by management and at the working level)?
  - 2.5.3 Are the work packages based on earned value vice level of effort?
  - 2.5.4 Is the EVM data consistent with known technical risks and challenges in the program?
  - 2.5.4 Are the EVM data being used to adjust program resources to address risk issues?
  - 2.5.5 Have the metrics to track EVM been clearly articulated and have sufficient fidelity to understand the status of the system

development, as well as the latest estimate of system performances (explicit and derived)?

## 2.6 Work Breakdown Structure (WBS) review

2.6.1 Is the WBS consistent with the technical risks of the program?

2.6.2 Is the WBS broken down to an appropriately detailed level to address all technical tasks?

2.6.3 Are all CI's (including software) addressed in the WBS?

2.6.4 Are the requirements tracked, traced, and modeled using an automated tool?

## 2.7 Software metrics – Status versus Plan

2.7.1 Are adequate software metrics in place and being used to manage the software effort?

2.7.2 Do the metrics indicate status versus plan? What level of risk do the metrics indicate?

2.7.3 Staffing level metrics – Is the software staffing adequate for the magnitude/complexity of the software and the level of software risk?

2.7.4 Size metrics – Are the software sizing metrics adequate and consistent with the detailed design? Do they indicate readiness for coding/testing?

2.7.5 Are Computer resource utilization metrics known and allocated to CI?

2.7.6 Are other software complexity metrics being used and do these metrics indicate adequate understanding of complexity versus resources (schedule, funding, and staff) available to ensure coding/testing success?

2.7.7 Does the SOW require the contractor to define, establish, and operate a metrics data collection, analysis, and reporting system that provides quantitative information on key software program management issues?

## 3. Program Staffing

3.1 Is there a complete organization structure shown and is the organization consistent with the technical challenges/risks of the program?

3.2 Are key government / contractor interfaces identified and are these consistent with program risks?

3.3 Is adequate staffing (required expertise and quantity of expertise for both the contractor and the government) available to execute the schedule? Are all required flight clearance performance monitors, if applicable, involved?

## 4. Process Review

4.1 Program Management processes as detailed in the Program Management Plan Are the program management processes that are in place adequate to address the technical challenges of the program and adequate to address program risks?

4.1.1 Is there an updated Program Management Plan that is reflective of the emergent technical issues and risks?

4.1.2 Are there Program Management processes in place to properly manage testing, and other attendant technical emphasis areas?

4.1.3 Is the program being managed to adjust resources to address issues in testing and production planning?

4.2 Configuration Management processes as detailed in the Configuration Management Plan

4.2.1 Is the CM plan in place and up-to-date?

4.2.2 Is each configuration item documented and being managed in accordance with the CM Plan?

4.2.3 Are changes to the managed CI configurations controlled and tracked to higher level (System Specification and CDD/CPD/ORD), and lower level (detailed design) documents?

4.3 Systems Engineering processes (DCMA Systems Engineering Guide) as detailed in the Systems Engineering Plan (SEP), formerly Systems Engineering Management Plan (SEMP)

4.3.1 Is there a defined systems engineering process?

4.3.2 Are the processes shared by the government and contractor team?

4.3.3 Are the SE processes in place and being used?

4.3.4 Are the planned technical reviews in place and properly placed (event driven vice schedule driven)?

4.3.5 Are the SE processes adequate to support the technical requirements of the technical reviews?

4.3.6 Are the technical teams working against a defined technical baseline?

4.3.7 Is the program using a SE automated tool (i.e. DOORS, CORE, SLATE etc.) to manage traceability of each Configuration Item (CI)?

4.4 Risk Management processes as detailed in the Risk Management Plan

4.4.1 Is there a defined risk management process? Is the Risk Management Plan up to date and being used?

4.4.2 Is the risk management process shared by the government and contractor team?

4.4.3 Does the risk management process properly track all risks on a continuous basis and provide for update of the mitigation approaches?

4.4.4 Are mitigation approaches in place for all yellow and red risks? Are risk mitigations resourced?

4.4.5 Does the risk management process provide for risk updates to support the technical reviews and program management (acquisition) reviews?

4.4.6 Is the system's safety Risk mitigation plan being managed by the program Risk Management Board?

#### 4.5 Test processes as detailed in the Test and Evaluation Master Plan (TEMP)

4.5.1 Have developmental test plans been formulated/executed in accordance with the TEMP?

4.5.2 Is there a clear understanding of test requirements and deficiency definitions (deficiency categories) to support system verification?

4.5.3 Are test requirements tied to system requirements? Are these test requirements consistent with the system?

4.5.4 Have facilities/test resources been defined and included in the test planning?

4.5.5 Is there User buy-in to the above test planning? Are there provisions for User participation?

#### 4.6 Production processes (ISO 9000, etc.)

4.6.1 Have production processes been considered?

4.6.2 Have production requirements been properly captured and addressed in the risk assessment?

4.6.3 Have long-lead items been identified and are production processes sufficiently mature for this phase of the program?

4.6.4 Where applicable, are Unique Identification (UID) requirements being incorporated? (MIL-STD-130.)

#### 4.7 Program utilization of lessons learned

4.7.1 Have the lessons learned by other programs been utilized to reduce risk?

### 5. Requirements Management

- 5.1 Is there a process in place for requirements management and is it being applied to properly address this stage of the program?
- 5.2 Are requirements being managed and traced from higher level (parent) requirements to lower level (offspring) requirements? Are there any orphan or childless requirements?
- 5.3 Have safety or airworthiness requirements been addressed and documented?
- 5.4 Is adequate requirements traceability in place to ensure compliance with the CDD/CPD/ORD at OT&E?
- 5.5 Are both effectiveness and suitability requirements being addressed and allocated?
- 5.6 Are test requirements addressed and documented to the same level of detail as functional requirements (operation and suitability)?
- 5.7 Is the Product Baseline under CM control?

## **6. System Performance Verification**

- 6.1 Are Subsystem requirements traced to system requirements (and CDD/CPD/ORD)?
- 6.2 Are the Subsystems traced to subsystem requirements?
- 6.3 For the overall system, and each Configuration Item, the following system requirements should be assessed, as applicable:
  - 6.3.1 Have the KPP's and other performance requirements, both explicit and derived, been defined, quantified, documented, tested, and verified? What is the latest, verified system capability against these requirements and what deficiencies have been documented? What is the risk associated with these deficiencies? Address similarly for each KPP, Critical Operational Issue (COI), or major derived requirement in this area.
  - 6.3.2 Have Functional Interface Requirements been defined, created, tested, and verified? What is the latest, verified system capability against these requirements and what deficiencies have been documented? What is the risk associated with these deficiencies? Address similarly for each KPP, COI, or major derived requirement in this area.
  - 6.3.3 If applicable, have airworthiness considerations been addressed? Is there a flight clearance or plan for one?
- 6.4 Reliability and Maintainability (R&M)
  - 6.4.1 Have Reliability and Maintainability and Built-In-Test (BIT) requirements been incorporated in the system? What is the latest, verified system capability against these requirements and what deficiencies have been documented? What is the risk associated

with these deficiencies? Address similarly for each KPP, COI, or major derived requirement in this area.

6.4.2 Is the final mission profile definition complete and does it accurately define the expected operational environment? Does the system perform adequately in this environment? What is the latest, verified system capability against these requirements and what deficiencies have been documented? What is the risk associated with these deficiencies? Address similarly for each KPP, COI, or major derived requirement in this area.

6.4.3 Are the final R&M block diagrams and math models complete, accurate, and do they meet the required mission reliability performance requirements? Has testing verified the predictions?

6.4.4 Is the final FMECA complete and accurate? Has testing verified elimination of single point failure modes and/or improve overall weapons system reliability?

6.4.5 Have all critical safety items (CSI's) have been identified? Do CSI lists include components contained in lower-level subsystems? Are CSI lists in a format suitable for use by the appropriate logistics support organizations/inventory control points?

6.4.6 Are R&M allocations complete and accurate?

6.4.7 Are the final Reliability predictions using piece part stress technique complete, and do they meet all specified Reliability performance requirements in accordance with buying activity guidelines? Has testing verified these predictions?

6.4.8 Are the final Maintainability predictions complete, and do they meet all specified Maintainability performance requirements in accordance with buying activity guidelines? Has testing verified these predictions?

6.4.11 Is the final analysis complete, and does it eliminate overstressed components?

6.4.12 Have lessons learned been addressed, and implemented where applicable?

6.4.13 Are trade studies complete, and implemented where applicable?

6.4.14 Have buying activity R&M Risk Assessment questions been completed and potential mitigation provided?

Address the below areas similarly to 6.4.3 above if required

- |                 |                 |
|-----------------|-----------------|
| ➤ EMI / EMC     | ➤ System Safety |
| ➤ Survivability | ➤ Aeromechanics |
| ➤ Producibility | ➤ Structures    |

- Materials
- Mass Properties
- Crew Systems/Human Systems Integration
- Environmental
- Supportability
- Configuration Management
- Funding
- Environmental
- Safety and Health
- Maintenance Planning
- Manpower & Personnel
- Supply Support
- Support Equipment
- Technical Data
- Training & Training Support
- Computer Resources
- Facilities
- Packaging
- Handling
- Storage & Transportation
- Design Interface
- Obsolescence
- Interoperability
- Systems Interface/Integration
- Platform diagnostics integration

6.4.15 Is the system testable? Are there plans in place to cover verification via other means as required (analysis, simulation, etc.)? Is there buy-in among all stakeholders as to these approaches?

6.4.16 For Computer/Software CI's, is there sufficient progress in testing and test results? What is the status of the software testing? What is the status of open problem reports / deficiency reports and how do these open deficiencies affect successful OT and OT&E?

6.4.1.0 For the overall system, and each Configuration Item, the following system constraints (system budgets) should be addressed as applicable:

6.4.1.1 Have Physical Interface requirements been incorporated in the system? Have proper tradeoffs been made? Have these physical interfaces been verified by testing or other means? What is the risk of open deficiencies?

6.4.1.2 Is DT and OT test data being modeled to identify and track issues with respect to reliability growth of sub-systems & systems?

6.4.1.3 Are design influencing recommendations being provided to design engineers concerning A<sub>o</sub> bad actors which most affect achievement for A<sub>o</sub> objectives?

6.4.1.4 Is the Cost Analysis Requirements Description (CARD) consistent with the product baseline and do cost estimates reflect the CARD content?

6.4.1.5 Has development cost tracked as predicted?

6.4.1.6 Have production cost budgets been established?

6.4.1.7 Have operations and support costs been updated?

6.4.1.8 Have weight budgets been established and tracked for all CI's?

6.4.1.9 Has CI weight and its impact of overall system weight been tracked and properly traded? What is the latest status of each?

6.4.1.10 Volume Budget? What is the latest status?

6.4.1.11 CI Volume impact? What is the latest status?

6.4.1.12 Power Budget? What is the latest status?

6.4.1.13 CI Power impact? What is the latest status?

6.4.1.14 Cooling Budget? What is the latest status?

6.4.1.15 CI Cooling impact? What is the latest status?



6.4.1.16 Available technology / system growth – Have the requirements for technology insertion and system growth been allocated to the CI's and reflected in the system?

6.4.1.17 Has Risk been considered at the CI level?

6.4.1.18 Have the above requirements and constraints been captured in the product baseline (approved product specifications) and traceable back through the updated allocated baseline and functional baselines to the system specification and ORD? Has testing verified the system has/will satisfy these requirements?

## **7. System Verification**

7.1 Does the Requirements Verification Matrix exist and does it accurately reflect the CDD/CPD/ORD requirements?

7.2 Is each CI consistent with the subsystem test planning and approach?

7.3 Is each CI consistent with the full system test planning and approach?

7.4 What is the current, verified performance of each system CI versus the Requirements Verification Matrix (or equivalent)?

## **8. Program Risk Assessment**

8.1 Have risk items in the system been defined and analyzed?

8.2 Is the risk assessment process tightly coupled with the technical effort and reflective of the technical risks inherent in the system?

8.3 Has the risk assessment addressed risks to developmental test, operational test, training, and production/fielding of the system?

8.4 Is there adequate buy-in among the technical team as to risks and mitigations?

8.5 Is the technical risk assessment being shared at all levels of the Program Team?

The DCMA Product Assurance Specialist can play an influential role for the customer in not only the preparation of the review to ensure all activities related to the successful completion of the review has taken place (Entrance Criteria) but also ensuring that any follow-up actions required of the contractor after the review are completed in a satisfactory manner.

The Product Assurance Specialist can play an influential role while supporting the customer to ensure that the contractor has completed all the required criteria (e.g. RFA's) to ensure successful completion of the SVR.

- Does the status of the technical effort and system indicate operational test success (operationally suitable and effective)?

- Can the system, as it exists, satisfy the Capability Development Document (CDD)/draft Capability Production Document (CPD)?
- Are adequate processes and metrics in place for the program to succeed?
- Are the risks known and manageable?
- Is the program schedule executable within the anticipated cost and technical risks?
- Are the system requirements understood to the level appropriate for this review?
- Is the program properly staffed?
- Is the program's Non Recurring Engineering requirement executable with the existing budget?
- Is the system producible within the production budget?